

Work Order ID 144484

Tuesday, April 19, 2016 11:06:43 AM

144484

Page 1

Item ID: D4287-3 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Uhmw U-Channel
Start Date: 4/22/2016 Start Qty: 36.00 ***36*** Cust Item ID:
Required Date: 4/26/2016 Req'd Qty: 36.00 ***36*** Customer:
Reference:

Approvals: Process Plan: MCS Date: APR 19 2016 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D4287	A

100		0.00				36	APR 20 2016	DAS
100								13

Purchasing Memo 0.00
Purchasing Issue P/O: 32095
Material: UHMW (white)
Supplier P#: McMaster-Carr 8672K31
Material release note required

110	Receive & Inspect for Damage & Mat'l Certs	0.00						
110								
Packaging	Memo	0.72						
Packaging								

120	QC6- Inspect dimensions to drawing	0.00						DAS
120								16
QC	Memo	0.00						9-89
Quality Control								16/04/23

P10 →

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only



Work Order: <u>144484</u> Part No. <u>D4287-3</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Work Order ID 144484

144484

Page 2

Tuesday, April 19, 2016 11:06:43 AM

Item ID: D4287-3

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Uhmw U-Channel

Start Date: 4/22/2016 Start Qty: 36.00

36

Cust Item ID:

Required Date: 4/26/2016 Req'd Qty: 36.00

36

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

Identify as per dwg & Stock Location: ST 479

0.00

130

Packaging

Memo

0.36

Packaging

36x SP/6-04-28

140

QC21- Final Inspection - Work Order Release

0.00

140

QC

Memo

3.60

Quality Control

ML5 MAY 02 2016
2m 16/04/29

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
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Misidentified ☐	Past Due ☐								

Picklist Print

Tuesday, April 19, 2016 11:06:47 AM

Page 1

Work Order ID: 144484

144484

Parent Item: D4287-3

D4287-3

Parent Item Name: Uhmw U-Channel

Start Date: 4/22/2016

Required Date: 4/26/2016

Start Qty: 36.00

Required Qty: 36.00

Comments: IPP Rev:A 10.11.15 new issue DD Verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
8672K31		Purchased	No			110	f	0.0000	1	36			
8672K31									**				
UHMW U-Channel													

36 f 50/6-04-25

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

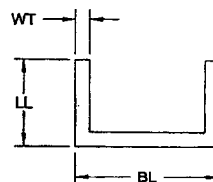
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SPECIFICATION CONTROL DRAWING

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

144484 MJS

16-04-19



D4287-X UHMW U-CHANNEL

DART PART NUMBER	POSSIBLE SUPPLIER	SUPPLIER PART NUMBER	MATERIAL	PURCHASED LENGTH	BASE LENGTH (BL)	LEG LENGTH (LL)	WALL THICKNESS (WT)	WEIGHT (lbs)
D4287-1	McMASTER-CARR	9928K53	UHMW (WHITE)	96.0	1.05	0.75	0.250	2.11
D4287-3	McMASTER-CARR	8672K31	UHMW (WHITE)	96.0	1.25	0.75	0.125	1.29

RELEASED
2010-11-03

NOTES:

- 1) MATERIAL: PURCHASE PER TABLE
OR
UHMW BLACK TIVAR 1000 VIRGIN MATERIAL
REF. DART SPEC. MUHMW
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: NONE
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: PER TABLE

A	NEW ISSUE	MB	10.10.26
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.10.26		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **DSC-D4287** REV. A
SHEET 1 OF 1

TITLE **UHMW U-CHANNEL** SCALE NTS

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32095**

Purchase Order Date 4/20/2016

PO Print Date 4/20/2016

Page Number 6 of 8

Order From :

MCMaster-CARR SUPPLY CO,
P.O. BOX 7690
CHICAGO, IL 60680-7690
US

VU-MCM001

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

330 995 5500

Ship To Contact

Ship To Phone

Ship Via:

Purolator ground ppd

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 10

Currency

USD

FOB

FCA - (Free Carrier)

16	71475-45	5758T162 FIRE EXTINGUISHER	4/22/2016	4.00	\$7.36	\$29.44
			Yes	Each		
			4/22/2016			

Line Total: \$29.44

Deliver To: DAVID.D

17	9928K53	UHMW U-Channel	4/22/2016	36.00	\$2.28	\$82.08
			Yes	f		
			4/22/2016			

AS PER DWG D4287 REV. A
B144485

Line Total: \$82.08

18	8672K31	UHMW U-Channel	4/22/2016	36.00	\$3.26	\$117.36
			Yes	f		
			4/22/2016			

AS PER DWG D4287 REV. A
B144484

Line Total: \$117.36

SP/6-04-25

Note:

4/20/2016



McMASTER-CARR®

Packing List

200 Aurora Industrial Pkwy
Aurora OH 44202-8087
330-995-5500
cle.sales@mcmaster.com

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury ON K6A 1K7
Canada

Purchase Order
PO32095

Order Placed By
Chantal Lavoie

McMaster-Carr Number
2227396-01

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04/20/2016

Line	Product	Ordered	Shipped
1	92373A143 18-8 Stainless Steel Slotted Spring Pin, 3/32" Diameter, 1/2" Length, Packs of 100, Chantal	1 Pack	1
2	97633A110 Black-Finish Steel External Retaining Ring, for 1/8" Shaft Diameter, Packs of 100, Chantal	1 Pack	1
3	9657K275 Steel Compression Spring, Zinc-Plated Music Wire, .500" L, .360" OD, .041" Wire, Packs of 12, Chantal	1 Pack	1
4	9001T17 Music Wire Ultra-Precision Compression Spring, .500" Length, .36" OD, .032" Wire Diameter, Packs of 3, Chantal	1 Pack	1
5	97525A473 18-8 Stainless Steel Blind Rivet with 18-8 Stainless Steel Mandrel, Domed, 5/32" Diameter, .376"-.5" Material Thickness, Packs of 50, Luc	1 Pack	1
6	97525A465 18-8 Stainless Steel Blind Rivet with 18-8 Stainless Steel Mandrel, Domed, 5/32" Diameter, .188"-.25" Material Thickness, Packs of 50, Luc	1 Pack	1
7	4661K62 Brass Float Valve with Copper Float, 1/2 NPT Male Inlet/Outlet, Luc	1 Each	1
8	5644K14 Retracting Air Hose, 5/16" ID, 3/8" OD, 210 PSI, Red, 100' Long, Luc	1 Each	1
9	4429K651 Low-Pressure Brass Threaded Pipe Fitting, 1/4 Pipe Size, 45 Degree Female X Male Elbow, Luc	1 Each	1
10	5294T49 Polyester/Cotton Blend Lab Jacket, Women's, Dark Blue, Size 14-16 (Large), Sylvie	2 Each	2
11	53355T71 Polyester/Cotton Blend Shop Coat, Dark Blue, Size 44	1 Each	1
12	2227A2 Cast Iron V-Blocks, 3-1/16" Maximum Workpiece Diameter, Eric L	1 Pair	1
13	60515A3 Polyurethane Replacement-Face Dead Blow Hammer, High-Visibility 2 lb, 1-7/8" Face Diameter, 11-3/4" L Overall, Eric L	1 Each	1
14	5758T46 Fire Equipment Sign, 4" X18", Plastic, "Fire Extinguisher", 2-Way View, David.D	6 Each	6
15	5875T117 First-Aid Sign, 8" X 8", 2-Way View, Plastic, "Eye Wash", David.D	2 Each	2
16	5758T162 Fire Equipment Sign, 4" X 18", "Fire Extinguisher", Plastic, David.D	4 Each	4
17	9928K53 Impact-Resistant UHMW Polyethylene U-Channel, 1" Base X 3/4" Legs, 1/4" Thick, 8' Long, Sold In 8 FT Lengths	40 Feet	40
18	8672K31 UHMW Polyethylene Trim, Screw Mount, U-Shape, 1" Inside Width	36 Feet	36
19	30345T552 18-8 Stainless Steel Wire Rope Lanyard - Not for Lifting, Loop-to-Tab, 3/64" Rope Diameter, 12" LG, Nylon, Replaces 30345T24, Difference Is Now Load Rated	5 Each	5

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: UHMW U-channel / Δ 42873 PO / BATCH NO.: P032095 / B144484
 DATE: 2016/04/28

MATERIAL CERT REC'D: _____
 QUANTITY RECEIVED: _____
 QUANTITY INSPECTED: _____
 QUANTITY REJECTED: _____

THICKNESS ORDERED: _____
 THICKNESS RECEIVED: _____
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒	
CORRECT FINISH	☒	N	
CORROSION	Y	☒	
CORRECT GRAIN DIRECTION	Y	N	N/A
CORRECT MATERIAL	☒	N	
CORRECT THICKNESS	☒	N	W = 0.125 / width 1.244 / Thickness 1.744 /
PHOTO REQUIRED	Y	N	
CORRECT MATERIAL	Y	N	8672K31
CORRECT REF # TO LINK CERT	Y	N	
CORRECT MATERIAL IDENTIFICATION	Y	N	
CORRECT M# ON THE MATERIAL	Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

QC 13 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>J</u>		SIGNED OFF BY: _____	
DATE: <u>16/04/28</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
- 6- REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
- 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
- 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
- 4- VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING

AFTER MATERIAL PASSES INSPECTION

- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN **20pcs** FOR FULL INSPECTION
- 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2.....) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER